

Nitra river basin – Slovakia

- Total area: 4501 km²; project area: 2,094 km²
- Broadleaf and mixed forests dominate the mountains, grasslands and agricultural land dominate the valley bottoms and lowland plains; diverse climates
- Industrial and domestic water use
- Region in transition with uncertain socio-economic future due to phasing out of coal mining
- Water supply expected to be reduced by climate change and discharge from the mines due to their closure;
- Increasing droughts and low stream flows during winter months



BARRIERS TO THE ADOPTION OF INNOVATIVE ADAPTATION POLICIES

Barriers

Rigid and conflicting regulations



Example

Conflicting legislation—such as the Mining Act and Nature Protection Act—creates regulatory contradictions. EIA processes are often inefficient and resource-intensive, which discourages some stakeholders from implementing NBS.

Regulatory and institutional uncertainty



Change in political regime in 2023 created large uncertainty in regulatory frameworks and in many institutions involved in water management

Limited institutional capacities and know-how on novel technologies and governance mechanisms precludes transformation



Large infrastructure debt and lack of capacities including modeling and monitoring capacities. Water management competencies are dispersed across many institutions and authorities that follow old paradigms

Limited monitoring, as well as enforcement, and institutional capabilities.



Lack of transparent and central registry of water permits and abstractions. The small abstractions below the threshold are not monitored, yet the cumulative impact can be large. No clear priority rules regarding the water use during water scarcity

Innovative solutions demand high return from investments hindering their implementation



Lack of effective examples of innovative solutions, such as NBS or insurance systems, limit their implementation

Decision-making and people's awareness are strongly influenced by personal beliefs (based on experiences, memories, group dynamics etc.)



Authorities tend to support old paradigms and engineering approaches over soft/economic instruments. The complexity of the systems is often ignored. Cost benefit and impact assessment analyses are often lacking

Gaps in modelling



No micro- or macro-economic modeling. Lack of data availability and systemic exchange among the institutions

Decisions-makers tend to avoid (transformational) instruments characterized by high degree of risk



Difficulties in the implementation of new technologies, NBS

POTENTIAL INNOVATIVE ADAPTATION POLICIES

1. Improved system and registry of water permits and abstractions including monitoring
2. Availability and open access data exchange among institutions and stakeholders
3. Assess the impact of reduced discharge and estimate the dynamics of water levels in the mines to prevent future outbursts
4. Implementation of ecological flows into water management practice
5. Strengthen policies to adapt to rare but high-impact events
6. Water Retention & Landscape Restoration